

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 28 OCT 2005

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Applicant's or agent's file reference WO 38173		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/08936	International filing date (day/month/year) 12.08.2003	Priority date (day/month/year) 12.08.2003	
International Patent Classification (IPC) or both national classification and IPC F01D17/16			
Applicant HONEYWELL INTERNATIONAL INC.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 10.03.2005	Date of completion of this report 31.10.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer de Rooij, M. Telephone No. +31 70 340-2306 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/08936**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-8 as originally filed

Claims, Numbers

1-8 received on 10.03.2005 with letter of 10.03.2005

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
- (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-4,6-8
	No: Claims	1,5
Inventive step (IS)	Yes: Claims	
	No: Claims	1-8
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations

see separate sheet

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Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D1: DE 14 28 171 A (GUTEHOFFNUNGSHUETTE STERKRADE) 23 January 1969

D2: DE 199 55 510 C (DAIMLER CHRYSLER AG) 21 September 2000

D3: GB 545 587 A (JAMES RUSSELL KENNEDY) 3 June 1942

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

2.1 In claim 1, a "sheet metal contour" is mentioned. The meaning of "a sheet metal contour" is, in the most general sense of the wording, an "outline of a body made of sheet metal". (see also Merriam-Webster online dictionary <http://www.m-w.com>).

2.2 The document D1 discloses (the references in parentheses applying to this document):

A variable nozzle device (p.1, l. 1-5) comprising an annular nozzle passage formed by a gap between two opposing wall members (11,12);

and a vane (10) extending in said nozzle passage and being rotatable supported by a shaft (16,17) attached to said vane (p.3, §3, l. 3-4).

2.3 Furthermore, in D1 the vane (10) can both be of solid structure, but also of a sheet metal (p.1, §1: "kann sich aber auch auf Blechschaufeln beziehen"). D1 therefore also discloses the vane being formed by a sheet metal contour.

In D1, additional sheet metal surfaces (21,22,26,27) are attached to the vane (p.3, §3), not to the shaft members (16,17). These additional surfaces are provided to avoid build-up of foreign matter along the sides of the wall members (p.1, §2).

The presence of these additional surfaces does not mean that D1 does not disclose a variable nozzle device with a vane, wherein said vane is formed by a sheet metal contour.

2.4 Finally, in D1, the spaces between the surfaces (24,25) are obtained by the protruding shaft portions (16,17), not by these sheet metal members (18,19). These

members serve to avoid the foreign matter around the protruding shaft portions (16,17). (p.4, §1, "Durch diese Bauart ... geschützt).

Therefore, D1 also discloses (figure 2) that at least a portion of the shaft (16,17) protrudes beyond an edge of said sheet metal contour by a predetermined amount so as to form a stepped portion contactable to one of said opposing wall members thereby separating said sheet metal contour from said one of said opposing wall members.

2.5 D1 thus discloses the combination of features of claim 1.

2.6 In document D2, "Leitschaukel 11" can be regarded as a sheet metal contour (see also §2.1). Furthermore, in D2, the shaft (13) protrudes beyond an edge of the sheet metal contour and thereby separates the sheet metal contour from the walls. Therefore, document D2 (particularly figures 1 and 3) also discloses the combination of features of claim 1.

2.7 The subject-matter of claim 1 is therefore not new.

3. It is noted that the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT in view of document D3.

3.1 The subject-matter of claim 1 only differs from the variable nozzle device known from D3 in that the shaft supporting the vane protrudes beyond an edge the vane.

3.2 The problem solved by the present invention in view of document D3 may therefore be regarded as minimizing the frictional loss between vane and wall member and avoiding the sticking phenomenon (description, p. 3, §5).

3.3 In D3, it is not explicitly mentioned how a clearance between the vane and the wall member is maintained. Making the shaft protrude beyond the edges of the vane is however well known in the prior art (see e.g. D2 (figures 1-3)) for providing the same advantages as in the present application. The skilled person would therefore regard it as a normal design option to include this feature in the variable nozzle device described in document D3 in order to solve the problem posed.

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3.4 The subject-matter of claim 1 therefore lacks an inventive step in view of document D3.

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4. Dependent claims 2-8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, since all the additional features are known from or rendered obvious by D1-D3, or fall within the scope of customary practice of a person skilled in the art, see e.g.:

- claim 2: D3, figure 10
- claim 5: D1, p.3, §3

5. The claimed invention is industrially applicable in the field of turbochargers (Article 33(4) PCT).